

REMARKS

This is in full and timely response to the final Office Action dated July 14, 2003. Entry of the foregoing amendment and reconsideration of the final rejections are respectfully requested pursuant to 37 CFR §1.116.

By the foregoing amendment, claim 11 has been rewritten into independent form for allowance, as suggested by the Examiner. Thus, claims 11 to 13 should now be in condition for allowance. Claims 14 and 15 have also been allowed by the Examiner. Claims 1 to 20 remain pending in this application, with claims 1 to 10 and 16 to 20 being subject to a new grounds of rejection set forth in the final Office Action.

Claims 1 to 10 and 16 to 20 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Browning et al. (U.S. Patent No. 6,409,564) in view of Jeng et al. (U.S. Patent No. 5,772,485). The Examiner contends that Browning et al. discloses all of the steps of the claimed manufacturing method, except the step of merging the baseplate and the faceplate while still in the vacuum. The Examiner relies upon Jeng et al. for a teaching of this feature. This rejection is respectfully traversed for the following reasons.

Browning et al. discloses a method for cleaning phosphor screens for use with field emission displays (FEDs). The method of Browning et al. is primarily directed to the removal of oxygen or sulfur from the surface of the phosphor. The method of Browning et al. includes the steps of (1) providing a phosphor coated screen in an evacuated chamber, (2) exposing the screen to electron energy, (3) baking the screen in atmospheric conditions after

exposure to electron energy, and (4) disposing the screen in a display device and sealing the display device after baking. These process steps are recited in each of Browning et al.'s independent claims, and are described, for example, in column 5, line 53, through column 6, line 56.

In contrast, the Applicants' invention recited in independent claims 1 and 16 to 19 includes the steps of (1) providing a baseplate and a faceplate, (2) desorption processing the faceplate in a vacuum, (3) merging the baseplate and the faceplate while still in the vacuum after the desorption processing, and (4) sealing the vacuum between the baseplate and the faceplate. Since the desorption processing (i.e., pre-aging), the merge of the baseplate and the faceplate, and the sealing are all performed in the same vacuum, a separate evacuation step is not required with the Applicants' invention. Specifically, the Applicants' claimed invention recited in each of independent claims 1 and 16 to 19, as amended, differs from Browning et al.'s process by reciting that the base plate and the faceplate are merged while still in the vacuum after the desorption processing.

The Examiner contends that it would have been obvious to modify the process of Browning et al. "by including the step of merging the baseplate and the faceplate while still in the vacuum as taught in Jeng et al." However, it is respectfully submitted that Jeng et al. does not support such a modification.

Jeng et al. discloses a method of making an emitter (cathode) structure 12 for use in a field emission display device (FED). Jeng et al. also teaches a process of assembling a

display panel by sealing the cathode structure 12 together with an anode structure 10 (see Fig. 1).

As stated in column 6, lines 22 to 34, the sealing process of Jeng et al. involves a sealing material 32 that reflows to create a seal when the anode and cathode structures 10 and 12 and the sealing material 32 are heated to a high temperature. Jeng et al. teaches that the heating process "is conducted within a vacuum environment of approximately 10^{-7} torr."

However, Jeng et al. does not teach that the same vacuum environment used to seal the structures 10 and 12 together is also used for desorption processing of the faceplate. The vacuum environment used in Jeng et al. is apparently created only at the time of sealing the structures 10 and 12 together, thereby avoiding the need for separately evacuating the cavity 38 between the structures 10 and 12 after they are sealed together (see column 6, lines 30 to 32).

The teachings of Jeng et al. are much different than the Applicants' invention where the base plate and the faceplate are merged together while still in the same vacuum used for the desorption processing. Indeed, Jeng et al. does not even include a desorption processing step.

It would not have been obvious to modify the process of Browning et al. to include the step of merging the baseplate and faceplate while still in the vacuum, based on the teachings of Jeng et al. The Examiner's purported motivation to combine the references is "to prevent dust or impurities from getting into the clean faceplate." However, neither reference teaches that sealing the baseplate and faceplate together in a vacuum has any effect on preventing dust or impurities from getting into the faceplate. Jeng et al.'s only reference to "cleanliness"

appears to be with respect to his objective of minimizing oxygen gas that may collect on the microtip emitters and form oxides thereon (see column 2, lines 21 to 34). Jeng et al. satisfies this objective by distributing a gettering material over the active region of the panel and in close proximity to the microtips. Jeng et al. does not teach that sealing the structures 10 and 12 together in a vacuum has any desired effect on preventing dust or impurities from getting into the faceplate.

With regard to Applicants' independent claim 20, it is respectfully submitted that Browning et al. does not disclose a method of manufacturing a flat panel display in which desorption processing of the faceplate is performed after the baseplate and the faceplate are merged together. Instead, Browning et al. expressly teaches away from such a process in column 6, lines 23 to 32, wherein it is stated "the scrubbing is accomplished ... prior to the assembly and sealing of the display." As described above, Browning et al.'s process involves baking the screen in atmospheric conditions after exposure to electron energy, and sealing the display device after baking.

Claim 20 is directed to the Applicants' third embodiment described on page 6, lines 18 to 23, of the specification. In this embodiment, the normal manufacturing steps are used for merging the faceplate and baseplate, sealing, and evacuation. However, during evacuation (after the baseplate and faceplate are merged), the faceplate is subject to desorption processing by pre-aging using electron irradiation to accelerate gassing. This is quite different from the process disclosed by Browning et al. where the scrubbing is accomplished before the faceplate and

baseplate are assembled.

For at least these reasons, it is respectfully submitted that claims 1 to 10 and 16 to 20 would not have been obvious under 35 U.S.C. § 103(a) based on the combined teachings of Browning et al. and Jeng et al. Accordingly, reconsideration and withdrawal of the final rejection of these claims are respectfully requested.

On page 5 of the final Office Action, the Examiner provides the following statement of reasons for allowance:

"The references fail to teach, disclose, or suggest, either alone or in combination, the step of desorption processing including a step of pre-aging before merge of the base plate and the face plate in combination with the rest of the limitations in the claims and base claims." (emphasis added)

This statement of reasons for allowance apparently applies to claims 11 to 13, but does not seem to apply to claims 14 and 15. Specifically, the claimed step of desorption processing in claim 14 "includes a step of pre-aging after merge of the baseplate and the faceplate." Claim 14 is directed to the Applicants' third embodiment of the invention described on page 6, lines 18 to 23, and is believed to be allowable for at least the reasons stated on page 12, lines 12 to 17, of the Applicants' previous response.

Applicants respectfully submit that all of the pending claims 1 to 20 are now in condition for allowance, and request that a timely Notice of Allowance be issued for this application.

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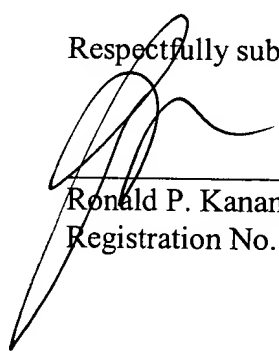
PATENT APPLICATION

If the Examiner intends to maintain any of the final rejections in this case, it is respectfully requested that this amendment be entered for the purpose of reducing and simplifying issues for appeal.

If the Examiner has any comments or suggestions that could place this application into even better form, the Examiner is encouraged to contact the Applicants' undersigned representative at the telephone number listed below.

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Respectfully submitted by:



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